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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|------------------------|---------------------|------------------|
| 10/034,326 | 12/28/2001 | Philip Chung-Hwei Chen | JCLA8104 | 8885 |
| 7590 | 10/25/2004 | | EXAMINER | |
| J.C. Patents, Inc. Suite 250 4 Venture Irvine, CA 92618 | | | WONG, EDNA | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1753 | |

DATE MAILED: 10/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/034,326

Applicant(s)

CHEN, PHILIP CHUNG-HWEI

Examiner

Edna Wong

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Specification

The disclosure is objected to because of the following informalities:

page 2, line 1, "(Sn85Pb15)" should be amended to -- (Sn₈₅Pb₁₅) --.

page 5, line 7, the word "deioned" should be amended to the word -- deionized --.

page 8, line 3, the word "deioned" should be amended to the word -- deionized --.

page 10, line 4, the word "sray" should be amended to the word -- ray --.

Appropriate correction is required.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

Claim 2 is objected to because of the following informalities:

Claim 2

line 1, the word "comprising" should be amended to the word -- including --. See

claim 1, line 5.

line 3, the word "sulfoante" should be amended to the word -- sulfonate --.

line 4, the word "deioned" should be amended to the word -- deionized --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

I. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1

line 5, it is unclear how the plating liquid includes a pure tin plating liquid (a liquid existing in the liquid).

Is the pure tin plating liquid suppose to be tin ions instead?

Claim 2

line 3, it is unclear how the plating liquid further comprises a methane sulfonate solution (a solution existing in the plating liquid). See also claim 2, line 6.

Claim 3

line 1, it appears that a barrel plating, the rack plating, a PCB plating, a strip-to-strip plating or a reel-to-reel plating is further limiting the plating process recited in claim 1, line 1. However, it is unclear if it is.

If it is, then it is suggested that the words "combined with" be deleted, and the word -- process -- be inserted after the word "plating" (fifth occurrence) in line 2.

If it is not, then how is the barrel plating, rack plating, PCB plating, strip-to-strip plating and reel-to-reel plating combined with the plating process?

See also claim 4, lines 1-3.

line 2, "the rack plating" lacks antecedent basis.

II. Claims **1-4** are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: an electroplating step.

Claim 1 recites the process steps of providing an anode, providing a cathode and providing a plating bath. "Providing" the elements used in the process are acceptable, however, they are not positive steps that would have carried out the low-lead plating process. Thus, the functional relationship between the elements is omitted.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **1-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Herklotz et al.** (US Patent No. 5,514,261).

Herklotz teaches a low-lead-content plating process, comprising:

- (a) providing an anode (= from electrodepositing);
- (b) providing a cathode (col. 8, claims 15 and 16); and
- (c) providing a plating bath containing:
 - (i) a plating liquid, wherein the plating liquid includes:
 - (a) a pure tin plating liquid (col. 2, lines 10-15);
 - (b) iron ions (col. 2, line 56),
 - (c) thallium ions (col. 2, line 58); and
 - (d) lead ions (col. 2, line 48).

The plating liquid further comprising a brightener (col. 2, lines 47-64), wherein the concentration of the wherein the concentration of the brightener is in the range of 50 to 250 mg/l (= metallic brighteners can be added to the bath in amounts of from 50 mg/l to 5 g/l) [col. 2, lines 52-60].

Herklotz does not teach wherein the concentration of lead ions is 2.5 to 10,000 mg/l, thallium ions is 1 to 550 mg/l, and iron ions is 1 to 550 mg/l.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Herklotz with wherein the concentration of lead ions is 2.5 to 10,000 mg/l, thallium ions is 1 to 550 mg/l, and iron ions is 1 to 550 mg/l because Herklotz teaches that metallic brighteners can be added to the bath in amounts of from 50 mg/l to 5 g/l (col. 2, lines 52-60).

Furthermore, the concentrations of the lead ions, thallium ions and iron ions are result-effective variables and one skilled in the art has the skill to calculate the concentrations that would determine the success of the desired reaction to occur, e.g., if lustrous surfaces are desired, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

Furthermore, the reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by the Applicants. *In re Linter* 458 F 2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F 2d 688, 16 USPQ 2d 1897 (Fed. Cir. 1990), cert. denied, 500 USPQ 904 (1991); *In re Linter* 458 F 2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F 2d 688, 16 USPQ 2d 1897 (Fed. Cir. 1990), cert. denied, 500

USPQ 904 (1991) and MPEP § 2144.

As to wherein the plating liquid further comprises a methane sulfonate solution, wherein the concentration of the methane sulfonate solution is in the range of 80 to 250 mg/l, Herklotz teaches that 5 to 450 g/l of a mercaptoalkanesulfonic acid is present in the aqueous bath (col. 1, lines 65-66).

Although Herklotz teaches 3-mercaptoethanesulfonic acid as a preferred mercaptoalkanesulfonic acid, however, the disclosure of reference must be considered for what it fairly teaches one of ordinary skill in the art, pertinence of non-preferred disclosure must be reviewed in such light. *In re Meinhardt* 157 USPQ 270; and MPEP § 2123. The ordinary artisan can realize from this teaching that mercaptomethanesulfonic acid would have been well within the skill of the artisan to have used.

As to wherein the plating liquid further comprises deionized water, Herklotz teaches aqueous baths comprising water (col. 1, line 60; and cols. 3-6, Examples). It is well within the skill of the ordinary artisan to have used deionized water because deionized water is more pure than tap water.

As to wherein the plating process is combined with a barrel plating, the rack plating, a PCB plating, a strip-to-strip plating or a reel-to-reel plating; and wherein the barrel plating, the rack plating, the PCB plating, the strip-to-strip plating or the reel-to-reel plating uses a barrel plater, a rack plater, a PCB plater, a strip-to-strip plater or a

reel-to-reel plater, respectively, Herklotz teaches that the bath can be used for electroplating small parts as well as tapes and wires and makes possible the deposition of silver alloys with a tin content of up to about 80 weight % (col. 2, lines 65-67). It is conventional in the art to electroplate tapes and wires on a reel-to-reel plater because tapes and wires are usually stored on storage rollers.

Citations

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

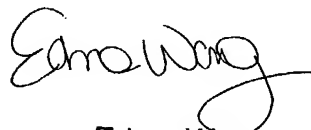
Westfall (US Patent No. 5,215,631) teaches a process for electrodepositing free-standing single crystal and free-standing dendritic crystal tin, doped tin and other free-standing single crystals, free-standing dendritic crystals and coatings by electrolysis from electrolytic baths containing tin cations or other ions to be electrodeposited (col. 1, lines 19-24).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 3:30 pm, Flex Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Edna Wong
Primary Examiner
Art Unit 1753

EW
August 23, 2004